Appendix J

J.0 Upland Public Lands Assessment Criteria and Proper Functioning Condition

J.1 Upland Public Lands Assessment Criteria

Table J.1 – Upland Public Lands Assessment Criteria

Indicators	Healthy	At Risk	Unhealthy
Phase I: Soil Stability and Watershed Function			
A-horizon	Present and distribution un-fragmented	Present but fragmented distribution developing	Absent, or present only in association prominent plants or with other obstructions
Pedestaling	No pedestaling of plants or rocks	Pedestals present, but on mature plants only; no roots exposed	Most plants and rocks pedestaled; Roots exposed
Rills and gullies	Absent, or with blunted and muted feature	Small, embryonic, and not connected into dendritic pattern	Well defined, actively expanding, dendritic pattern established
Scouring or sheet erosion	No visible scouring or sheet erosion	Patches of bare soil or scours developing	Bare areas and scours well developed and contiguous
Sedimentation or dunes	No visible soil deposition	Soil accumulating around plants or small obstructions	Soil accumulating in large barren deposits or dunes or behind large obstructions
Phase 2: Distribution of Nutrient Cycling and Energy Flow			
Distribution of plants	Plants well distributed across site	Plant distribution becoming fragmented	Plants clumped, often in association with prominent individuals; large bare areas between clumps
Litter distribution and incorporation	Uniform across site	Becoming associated with prominent plants or other obstructions	Litter largely absent
Root distribution	Community structure results in rooting throughout the available soil profile	Community structure results in absence of roots from portions of the available soil profile	Community structure results in rooting in only one portion of the available soil profile
Distribution of photosynthesis	Photosynthetic activity occurs throughout the period suitable for plant growth	Most photosynthetic activity occurs during one portion of the period suitable for plant growth	Little or no photosynthetic activity on location during most of the period suitable for plant growth
Phase 3: Recovery Mechanisms			
Age class distribution	Distribution reflects all species	Seedlings and young plants missing	Primarily old or deteriorating plants present
Plant vigor	Plants display normal growth form	Plants developing abnormal growth form	Most plants in abnormal growth form
Germination micro site	Micro sites present and distributed across the site	Developing crusts, soil movement, or other factors degrading micro sites; developing crusts are fragile	Soil movement or crusting sufficient to inhibit most germination and seedling establishment

J.2 Proper Functioning Condition (PFC)

J.2.1 Description of PFC

PFC is a methodology

PFC is a methodology for assessing the physical functioning of riparian and wetland areas. The term PFC is used to describe both the **assessment process**, and a defined, on-the-ground **condition** of a riparian-wetland area. In either case, PFC defines a minimum or starting point.

The PFC **assessment** provides a consistent approach for assessing the physical functioning of riparian-wetland areas through consideration of hydrology, vegetation, and soil/landform attributes. The PFC assessment synthesizes information that is foundational to determining the overall health of a riparian-wetland area.

The on-the-ground **condition** termed PFC refers to *how well* the physical processes are functioning. PFC is a state of resiliency that will allow a riparian-wetland system to hold together during a 25 to 30 year flow event, sustaining that system's ability to produce values related to both physical and biological attributes.

> PFC is not the sole methodology for assessing the health of the aquatic or terrestrial components of a riparian-wetland area.
>
> PFC is not a replacement for inventory or monitoring protocols designed to yield information on the "Biology" of the plants and animals dependent on the riparian-wetland area.

PFC can provide information on whether a riparian-wetland area is physically functioning in a manner that will allow the maintenance or recovery of desired values, e.g., fish habitat, neotropical birds, or forage, over time.

> PFC cannot provide more than strong clues as to the actual condition of habitat for plants and animals. Generally a riparian-wetland area in a physically non-functioning condition will not provide quality habitat conditions. A riparian-wetland area that has recovered to a *proper functioning condition* would either be providing quality habitat conditions, or would be moving in that direction if recovery is allowed to continue. A riparian-wetland area that is functioning-at-risk would likely lose any habitat that exists in a 25 to 30 year flow event.
>
> PFC is not a desired (future) condition. It is a prerequisite to achieving desired condition.

Therefore to obtain a complete picture of riparian-wetland area health, including the biological side, one must have information on *both* physical status, provided through the PFC assessment, *and* biological habitat quality. Neither will provide a complete picture when analyzed in isolation. In most cases proper functioning condition will be a prerequisite to achieving and maintaining habitat quality.

PFC is a useful tool

PFC is a useful tool for prioritizing restoration activities. By concentrating on the "At Risk" systems, restoration activities can save many riparian-wetland areas from degrading to a non-functioning condition. Once a system is non-functional the effort, cost, and time required for recovery is dramatically increased. Restoration of non functional systems should be reserved for those situations where the riparian-wetland has reached a point where recovery is possible, when efforts are not at the expense of "at risk" systems, or when unique opportunities exist. At the same time, systems that are properly functioning are not the highest priorities for restoration. Management of these systems should be continued to maintain PFC and further recovery towards desired condition.

PFC is a useful tool for determining appropriate timing and design of riparian-wetland restoration projects (including structural and management changes). It can identify situations where in stream structures are either entirely inappropriate or premature.

PFC is a useful tool that can be used in watershed analysis. While the methodology and resultant data is "Reach Based," the ratings can be aggregated and analyzed at the watershed scale. PFC, along with other watershed and habitat condition information helps provide a good picture of watershed health and the possible causal factors affecting watershed health. Use of PFC will help to identify watershed scale problems and suggest management remedies and priorities.

PFC is not a watershed analysis in and of itself, or a replacement for watershed.

PFC is a useful tool for designing implementation and effective monitoring plans. By concentrating implementation-monitoring efforts on the "No" answers, greater efficiency of resources (people, dollars, time) can be achieved. The limited resources of the local manager in monitoring riparian-wetland parameters can be prioritized to those factors that are currently "Out of Range" or at risk of going out of range. The role of research may extend to validation monitoring of many of the parameters.

PFC was not designed to be a long term monitoring tool, but it may be an appropriate part of a well-designed monitoring program.

PFC is not designed to provide monitoring answers about attainment of desired conditions. However, it can be used to provide a thought process on whether a management strategy is likely to allow attainment of desired conditions.

PFC can reduce the frequency and sometimes the extent of more data and labor-intensive inventories. PFC can reduce process by concentrating efforts on the most significant problem areas first and thereby increasing efficiency.

PFC cannot eliminate the need for more intensive inventory and monitoring protocols. These will often be needed to validate that riparian-wetland area recovery is indeed moving toward or has achieved desired conditions, e.g., good quality habitat; or simply establish what the existing habitat quality is.

PFC is a Qualitative Assessment

PFC is a qualitative assessment based on quantitative science. The PFC assessment is intended for individuals with local, on-the-ground experience in the kind of quantitative sampling techniques that support the checklist. These quantitative techniques are encouraged in conjunction with the PFC assessment for individual calibration, where answers are uncertain, or where experience is limited. PFC is also an appropriate starting point for determining and prioritizing the type and location of quantitative inventory or monitoring necessary.

PFC is not a replacement for quantitative inventory or monitoring protocols. PFC is meant to complement more detailed methods by providing a way to synthesize data and communicate results.

J.2.2 PFC Checklist

The following section contains the PFC checklist as used by BLM staff and others in the field. Immediately following are the general instructions, and then the two pages of the checklist itself.

General Instructions

- The concept **Relative to Capability** applies wherever it may be inferred.
- This checklist constitutes the **Minimum National Standards** required to determine Proper Functioning Condition of lotic riparian-wetland areas.
- As a minimum, an **ID Team** will use this checklist to determine the degree of function of a riparian-wetland area.
- Mark one box for each element. Elements are numbered for the purpose of cataloging comments. The numbers do not declare importance.
- For any item marked **No,** the severity of the condition must be explained in the **Remarks** section and must be a subject for discussion with the ID Team in determining riparian-wetland functionality. Using the **Remarks** section to also explain items marked **Yes** is encouraged but not required.
- Based on the ID Team's discussion, **functional rating** will be resolved and the checklist's summary section will be completed.
- Establish photo points where possible to document the site.

Proper Functioning Condition (PFC) ratings for evaluated desert springs, riverine segments and tributaries in various regions of the nemo planning area.

Table J.2 – PFC Ratings

Desert Spring Site or Riverine Segment	NEMO Region	PFC Rating[1]
Amargosa River-Amargosa Canyon to Dumont Reach	Tecopa	FAR-UT
Amargosa River-Grimshaw Lake	Hot Springs	FAR-DT
Amargosa River-Shoshone to Amargosa Canyon Reach	Shoshone	FAR-NT
Amargosa River-Nevada State Line to Shoshone Reach	Death Valley Junction	PFC
China Ranch Wash	Tecopa	PFC
Lower Carson Slough	DV Junction	PFC
Amargosa Spring	Silurian Valley	PFC
Corral Spring	California Valley	FAR-DT
Coyote Holes Spring	Kingston Wash	FAR-DT?
Crystal Spring	Kingston Mountains	FAR-UT
Dog Boots Spring	Ibex Hills	PFC
Sparrow Seep	Ibex Hills	PFC
Horsethief Spring	Kingston Mountains	FAR-UT
Kingston Spring	Kingston Wash	FAR-NT
Old Mormon	Avawatz Mountains	NF
Owl Hole Spring	Owlshead Mountains	NF
Quail Spring	Owlshead Mountains	FAR-DT
Salt Creek	Silurian Valley	FAR-UT
Smith Spring	Kingston Mountains	FAR-UT
Tule Spring	California Valley	FAR-DT
Twelvemile Spring	Chicago Valley	FAR-DT
Weaverdick Spring	Avawatz Mountains	FAR-NT

[1] FAR – Functioning at Risk

DT – Downward Trend

NT – NO Apparent Trend

UT – Upward Trend

NF – Non-functional

PFC – Proper functioning condition

Lotic Standard Checklist

Name of Riparian-Wetland Area: _____

Date: _____ Area/Segment ID: _____ Miles: _____

ID Team Observers: _____

Yes	No	N/A	Hydrologic
			Floodplain inundated in "relatively frequent" events (1-3 years)
			Active/stable beaver dams
			Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bio-climatic region)
			Riparian zone is widening or has achieved potential extent
			Upland watershed not contributing to riparian degradation
Yes	**No**	**N/A**	**Vegetative**
			Diverse age-class distribution (recruitment for maintenance/recovery)
			Diverse composition of vegetation (for maintenance/recovery)
			Species present indicate maintenance of riparian soil moisture characteristics
			Stream bank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high streamflow events
			Riparian plants exhibit high vigor
			Adequate vegetative cover present to protect banks and dissipate energy during high flows
			Plant communities in the riparian area are an adequate source of coarse and/or large woody debris
Yes	**No**	**N/A**	**Soils-Erosion Deposition**
			Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody debris) adequate to dissipate energy
			Point bars are revegetating
			Lateral stream movement is associated with natural sinuosity
			System is vertically stable
			Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

Summary Determination

Functional Rating:

Proper Functioning Condition _____

Functional – At Risk _____

Nonfunctional _____

Unknown _____

Trend for Functional – At Risk:

Upward _____

Downward _____

Not Apparent _____

Are factors contributing to unacceptable conditions outside BLM's control or management?

No _____

Yes _____

If yes, what are those factors?

____ Flow regulations

____ Mining activities

____ Upstream channel conditions

____ Channelization

____ Road encroachment

____ Oil Field water discharge

____ Augmented flows

____ Other (specify) _____

Remarks

_____

_____

_____

_____

_____

Lentic Standard Checklist

Name of Riparian-Wetland Area: _____

Date: _____ Area/Segment ID: _____ Miles: _____

ID Team Observers: _____

Yes	No	N/A	Hydrologic
			Riparian-wetland area is saturated at or near the surface or inundated in "relatively frequent" events (1-3 years)
			Fluctuation of water levels is not excessive
			Riparian-wetland zone is enlarging or has achieved potential extent
			Upland watershed not contributing to riparian-wetland degradation
			Water quality is sufficient to support riparian-wetland plants
			Natural surface or subsurface flow patterns are not altered by disturbance (i.e., hoof action, dams, dikes, trails, roads, rills, gullies, drilling activities)
			Structure accommodates safe passage of flows (e.g., no headcut affecting dam or spillway)
Yes	**No**	**N/A**	**Vegetation**
			Diverse age-class distribution (recruitment for maintenance/recovery)
			Diverse composition of vegetation (for maintenance/recovery)
			Species present indicate maintenance of riparian-wetland soil moisture characteristics
			Vegetation is comprised of those plants or plant communities that have root masses capable of withstanding wind events, wave flow events, or overland flows (e.g., storm events, snow melt)
			Riparian-wetland plants exhibit high vigor
			Adequate vegetative cover present to protect shoreline/soil surface and dissipate energy during high wind and wave events or overland flows
			Frost or abnormal hydrologic heaving is not present
			Favorable microsite condition (i.e., woody debris, water temperature, etc.) is maintained by adjacent site characteristics
Yes	**No**	**N/A**	**Soils-Erosion Deposition**
			Accumulation of chemicals affecting plant productivity/composition is not apparent
			Saturation of soils (i.e., ponding, flooding frequency and duration) is sufficient to compose and maintain hydric soils
			Underlying geologic structure/soil materials/permafrost is capable of restricting water percolation
			Riparian-wetland is in balance with the water and sediment being supplied with the watershed (i.e., no excessive erosion or deposition)
			Islands and shoreline characteristics (i.e., rocks, course and/or large woody debris) adequate to dissipate wind and wave event energies

Summary Determination

Functional Rating:

Proper Functioning Condition _____

Functional – At Risk _____

Nonfunctional _____

Unknown _____

Trend for Functional – At Risk:

Upward _____

Downward _____

Not Apparent _____

Are factors contributing to unacceptable conditions outside BLM's control or management?

No _____

Yes _____

If yes, what are those factors?

____ Dewatering

____ Mining activities

____ Watershed condition

____ Dredging activities

____ Road encroachment

____ Land ownership

____ Other (specify) _____

Remarks

_____

_____

_____

_____

_____

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